



KANSAS



FLOODPLAIN MANAGEMENT NEWSLETTER

November 2004

Kansas Department of Agriculture
Division of Water Resources Floodplain Program

Kansas Floodplain Managers' Conference Review

The Kansas Association for Floodplain Management and the Kansas Department of Agriculture's Division of Water Resources held their first Kansas Floodplain Managers' Conference in Topeka on September 8-9, 2004.

Seventy-four participants, including local floodplain administrators, state employees, consultants, vendors and FEMA and Army Corps of Engineer representatives, attended the conference.

Kirk Miller, Vice Chair of the Kansas Association for Floodplain Management provided opening remarks and thanked everyone for attending the conference. Tracy Streeter, Acting Director of the Kansas Water Office, kicked off the conference with a discussion about the need to protect the state's water resources and the important role floodplain managers play in coordinating water issues.

The conference included break-out sessions Wednesday afternoon and Thursday morning. The sessions

featured the discussion topics *insurance, mapping, state permitting and local floodplain management*.

There were opportunities during the conference for attendees to visit with exhibitors including representatives from AMEC, FMSM Engineers, MarkHurd, Watershed Concepts, Army Corps of Engineers – Tulsa District, and Western Air Maps.

Wednesday evening the group heard a presentation during dinner from George Riedel, state floodplain manager from Missouri discuss No Adverse Impact. The group also exchanged ideas concerning current No Adverse Impact activities in Kansas communities.

The conference ended with closing remarks and the anticipation of another conference next year. Several attendees also participated in a study session and subsequent exam for ASFPM's Certified Floodplain Manager Program.

Pictures from the 2004 Kansas Floodplain Managers' Conference



Group dinner discussing No Adverse Impact.



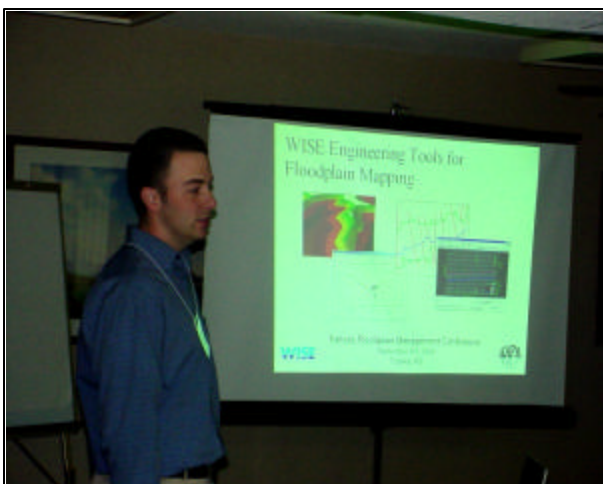
Group picture.



Participants examining the Tulsa COE flood model.



Matt Scherer discussing state permitting requirements.



Andy Bonner discussing mapping.



Peggy Sneegas discussing local permitting.

Activities you can do to raise awareness about flooding in your community...

Many local communities are challenged with explaining to their residents why floodplain management is important. There are a number of activities you can do at the local level that will raise awareness and help your residents understand their risk.

- ◆ Provide a newsletter to all residents identifying where the special flood hazard area is located and what that means to them.
- ◆ Provide a newsletter to floodplain residents identifying the risk that they face and property protections measures those homeowners can take to reduce their risk to flooding.
- ◆ Inform your insurance agents, lenders and real estate agents about services your community provides, including map information and ideas for property protection measures.
- ◆ Conduct a flood-preparedness workshop giving residents the opportunity to meet with representatives from various agencies within your community and around the state that can answer questions about the local flood hazard.
- ◆ Involve your local school district in raising student awareness about water and the many facets important to water management.
- ◆ Participate in FEMA's Community Rating System to reduce the cost of flood insurance premiums for your flood insurance holders.
- ◆ Display flood protection information at public meetings, community events and shopping malls.
- ◆ Have material available at your city hall or library that discusses the local flood hazard.



If you are interested in implementing any of these activities and need help getting started, please contact Rhonda Montgomery at (785) 296-4622.

The media also can raise awareness about floods and flash floods by providing important information to the community. Here are some suggestions:



- Publish a special section in your local newspaper with emergency information on floods and flash floods. Localize the information by printing the phone numbers of local emergency services offices, the American Red Cross and hospitals.
- Interview local officials about land use management and building codes in floodplains.
- Work with local emergency services and American Red Cross officials to prepare special reports for people with mobility impairments on what to do if an evacuation is ordered.
- Periodically inform your community of local public warning systems.

For more information visit www.fema.gov/hazards/floods/flood.shtm .

Upcoming Training Schedule

Following is an explanation and schedule for upcoming training around Kansas. You will be sent an invitation/registration form for the training session as the dates get closer. If you do not receive an invitation or would like more information about the training, please contact Rhonda Montgomery at (785) 296-4622.

Basics of Floodplain Management and Ordinance Review - This is a four-hour workshop taught in connection with ordinance review

Basics of Floodplain Management is designed to give you an overview of floodplain management in Kansas. Discussions cover the basics of the National Flood Insurance Program, why we regulate floodplains, the technical aspects of regulating floodplains, FEMA maps, FEMA forms including elevation certificates and no-rise analysis, construction in a special flood hazard area and where to get additional information.

Ordinance Review is designed to help you identify the minimum standards that must be in your community's regulations to participate in the National Flood Insurance Program. This session will explore the reasons for the minimum standards and explain why they need to be incorporated into your community's regulations. We also will discuss higher regulatory standards and how your community could benefit from implementing additional standards.

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| Marysville | December 1, 2004 |
| Salina | December 8, 2004 |
| Pratt | February 22, 2005 |
| Wichita | February 23, 2005 |
| Independence | March 15, 2005 |
| Iola | March 16, 2005 |
| Garden City | April 5, 2005 |
| Colby | April 6, 2005 |
| Winfield | April 19, 2005 |

Post-Flood Responsibilities

This training will provide guidance to local permit officials in the tasks associated with a flood event including pre-flood preparation and post-flood responsibilities. Whether or not your community has experienced a flood, it will happen, and you will need to be able to respond to the event to ensure that all post-flood reconstruction in your community's floodplain is compliant.

When established procedures are not in place, the difficulty of performing post-flood tasks is multiplied. A flood event in your community is truly a time of crisis. This training will provide you the tools and guidance needed to properly respond to a flood event and ensure that your community is meeting all the requirements of your local floodplain regulations. By enforcing your local floodplain regulations, you can help to reduce your community's future flood damages.

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| Easton | January 26, 2005 |
| Great Bend | May 10, 2005 |
| El Dorado | July 27, 2005 |

GIS For Managers and Users

This workshop will introduce the history of geographic information systems and fundamental concepts, compare various platforms and alternatives, provide detailed information about available data layers and where to find data, describe the data that currently should be provided by mapping partners, and describe affordable alternatives to get GIS onto the desktop of managers and users. Data models will include HAZUS, National Hydrography Dataset, ArcHydro Cata Model and DFIRMS (and required deliverables).

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| Salina | June 2, 2005 |
| Pittsburg | July 21, 2005 |
| Emporia | August 18, 2005 |

Dam Safety Conference February 24-25, 2005

The Kansas Dam Safety Program is offering a conference February 24-25, 2005, at the Holidome in Topeka. The event is free and will feature topics of interest to the small dam owner, municipalities and watersheds, and engineering professionals.

For most owners, dams are an investment that enhance property and lifestyle through recreation, wildlife and water supply. The dam safety workshop offers techniques that will extend the life and safety of dams.



The sessions will cover:

- rules and regulations
- liability issues
- slope protection
- permitting requirements
- insurance for small dam owners
- geotechnical issues
- maintaining and operating small dams
- dam inspection for small dams
- examples of dam problems

New this year will be a permitting roundtable featuring a panel of regulatory staff who will be available to answer questions relating to the permitting process. A field trip to area dams is scheduled on day two. Space on the bus is limited, so register early.

There is no charge to attend the conference; lunches and the evening social are optional for a fee. Additional information is available online at www.ksda.gov, or you may contact Beth Cooper at (785) 296-0573.



New Consumer Campaign

FEMA has a new NFIP consumer campaign, which is aimed at educating homeowners and renters about how to prepare for flood events and how to protect property from flood damage. The campaign is called FloodSmart and involves television spots, public education through the insurance industry,

realtors and lenders, and includes a new website of www.floodsmart.gov. The site will help people learn more about protecting their structures from flooding, determining what risk of flooding they might have, finding a local insurance agent, and estimating the cost of flood insurance premiums.

Anatomy of a FEMA Flood Insurance Study

Because Map Modernization has provided the Kansas Department of Agriculture's Division of Water Resources with the opportunity to begin a statewide mapping initiative, we will be conducting mapping projects across Kansas. The mapping projects may include identification of flood-prone areas using both detailed and approximate study methods. A general discussion of the methodology used for mapping projects is presented in the following paragraphs.

Topographic Data Development

Detailed Study - A detailed study typically requires generating new/updated topography for areas directly adjacent to the flooding source. FEMA has specific requirements for the accuracy of this data. For studies undertaken by KDA-DWR, generally the resulting product from this step is a topographic dataset with two foot contour intervals. If a local community has new or updated topography for the stream source, KDA-DWR would be interested in using this information, as costs for developing new topography can be very high.

Approximate Study - Approximate study methods use existing topography for delineating the areas at risk to flooding. In most cases, the USGS contour maps are the best source of existing topography and are used for the elevation needs for the approximate study. In the eastern part of the state, the topographic information is generally 10-foot contour intervals. In the western part of the state, the topographic information is generally five foot contour intervals. If a local community has better topography than USGS contour maps, KDA-DWR would be interested in using this information.

Field Survey (only occurs in detailed study areas) - Field survey is used to generate surveyed cross sections perpendicular to the flow of floodwaters in order to accurately measure floodplain geometry. Also, field surveys measure floodplain structures, such as bridges and culverts, to determine how floodwaters flow through such structures. If a local community has survey information for the stream source, KDA-DWR would be interested in using this information, as costs for developing surveyed cross sections can be high.

Hydrology (both approximate and detailed study areas) -

For streams that have a stream gaging station, gage data is used to determine volume of water (Q) that would flow in a 1 percent annual chance flood. For streams that do not have adequate stream gage data, the volume (Q) is calculated using USGS Regional Regression Equations, described in *Estimation of Peak Streamflows for Unregulated Rural Streams in Kansas*, Water Resources Investigations Report 00-4079. The equation to obtain the Q includes information such as rainfall amounts, total drainage area that contributes to the streamflow, land use and other relevant factors. Rainfall amounts are estimated according to a chart presented as a portion of the USGS publication describing Regional Regression Equations. Total contributing drainage area is determined using existing topographic data sources, with larger contributing drainage areas creating larger flows than smaller contributing drainage areas. Land use is estimated by both visual survey in the field and visual survey of aerial imagery. Areas that have a greater percentage of impervious surface, such as parking lots, will have greater flows than areas with a

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Anatomy of a FEMA Flood Insurance Study

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detailed methods, the Q for 10, 2, and 0.5 percent annual chance flood events are also calculated.

Hydraulics

Detailed Study Areas - A hydraulic model is created that incorporates the new/updated topographic data, surveyed cross-sections, and floodplain structure measurements that were generated earlier in the study, as well as the volume of water that was calculated in the hydrology portion of the project, in order to calculate a depth of flooding for the stream being studied. This depth, measured against the bottom of the stream channel, is the base flood elevation. A similar hydraulic model is created to calculate the extent of flooding in the 0.2 percent annual chance flood. In some cases a floodway also is calculated. There are many variables in these models, including Manning's N, which is a coefficient used to estimate the effect of ground cover on flow. For example, a high Manning's N coefficient may represent an area with heavy vegetation as land cover. In this situation, water flow would be impeded, so water would back up and spread out, causing the floodplain to be wider. A low Manning's N coefficient, on the other hand, could represent a concrete lined channel. There is very little to impede the flow of water, so the flow would be very fast, the water would not back up and the floodplain would be narrower.

Approximate Study Areas - A hydraulic calculation, similar to the model in the detailed study areas is created that incorporates the existing topographic data, as well as any existing data about structures. Because no surveyed cross sections are available, cross sections are cut from the topographic data. If no

structure information is available, the stream is modeled as if the structure did not exist. Using the information provided, the model is used to calculate a depth of flooding. However, because of the coarseness of the topographic data and the lack of survey information for floodplain structures, the model is not accurate enough to calculate base flood elevations that can be published on the FEMA Flood Insurance Rate Maps.

Floodplain Mapping

In both the detailed study areas and the approximate study areas, the depth of flooding is imposed on the topographic data to determine the extent of the floodplain. For example, if the depth of flooding at a given cross section is seven feet and the bottom of the stream channel is 863 feet above sea level, the floodplain boundary would be drawn at elevation 870 feet above sea level on either side of the stream. The depths are imposed on topographic data at each cross section in order to determine the extent of the floodplain and the depths are estimated between cross sections to create the special flood hazard area.

For the detailed study areas, the 0.2 percent annual chance flood event boundary is drawn in a similar fashion.

Digital Flood Insurance Rate Map

The floodplain information is organized in a geodatabase which is a geographic information system compatible format. This geodatabase includes floodplain boundaries, cross-section information, and base flood elevations, where available. This information can be overlaid on aerial photography as well as any other geographic layer that a local community has developed, such as parcel boundaries or future zoning plans.

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Please help us keep our records up to date. If your floodplain manager is different than the name that appears on this newsletter, please call (785) 296-4622 or send an e-mail to rmontgomery@kda.state.ks.us to inform us of the change.

Additionally, if your mayor or city clerk has changed, please let us know. Thank you.

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